IN THE CLAIMS:

Claims 1-34 (Canceled).

35. (Currently Amended) A process for determining the risk of flammability of a mixture of at least two reactive gases A, B, in an inert or base gas, or the order of mixing of these reactive gases into the inert or base gas, the process comprising:

- a step of determining whether the composition of the mixture, during its formation, passes through a flammability region in ~~the~~ a ternary diagram of the A/B/inert or base gas mixture when the mixture is produced according to a first mode in which A is first mixed into the inert or base gas to form a first mixture and then B is mixed into the first mixture to form the final mixture;

- a step of determining a first transit time through the flammability region of the ternary diagram when the mixture is produced according to the first mode; ~~and~~

- a step of comparing the first transit time with the chemical induction time of the mixture or of the stoichiometric mixture; and

- a step of determining the risk of flammability or the order of mixing based on a review of data received from the previously recited steps.

36. (Canceled)

37. (Currently Amended) The process according to claim 35, further comprising a step of comparing one or more mixing times of ~~the~~ a mixer or mixers

used to prepare the mixture, with the chemical induction time of the mixture or of the stoichiometric mixture.

38. (Currently Amended) The process according to claim 35, further comprising[[,]]:

- a step of determining whether [[if]] the composition of the mixture passes through the flammability region of the ternary diagram, or [[if]] whether the first transit time or the ~~mixing~~ time of preparing the mixture is greater than the chemical induction time of the mixture[[:]]; and

- a step of determining whether the composition of the mixture, during its formation, passes through the flammability region in the ternary diagram of the A/B/inert or base gas mixture, when the latter is produced according to a second mode in which B is first mixed into the inert or base gas to form a first mixture and then A is mixed into the first mixture to form the final mixture.

39. (Previously Presented) The process according to claim 38, further comprising:

- a step of determining a second transit time through the flammability region of the ternary diagram when the mixture is produced according to the second mode;

- a step of comparing the second transit time with the chemical induction time of the mixture or of the stoichiometric mixture.

40. (Currently Amended) The process according to claim 38, further comprising a step of comparing one or more mixing times of ~~the~~ a mixer(s) used to prepare the mixture with the chemical induction time of the mixture or of the stoichiometric mixture.

41. (Currently Amended) The process according to claim ~~35~~ 38, wherein, if the composition of one of the mixtures according to one of the modes of injection does not pass through the flammability region during its formation, this mode is selected.

42. (Currently Amended) The process according to claim ~~35~~ 38, wherein a mode or the mode for which the ~~mixing~~ time or times of preparing the mixture or the transit time through the flammability region of the ternary diagram is less than the chemical induction time of the mixture is selected.

43. (Currently Amended) The process according to claim ~~35~~ 38, wherein, if the two modes of injection both force the composition to pass through the flammability region, selecting of the mode for which:

(i) ~~the~~ an intermediate mixture point, representative of the composition of the first mixture, lies outside the flammability region;

(ii) the ~~mixing~~ time or times of preparing the mixture or the transit time through the flammability region of the ternary diagram is less than the chemical induction time of the mixture.

44. (Previously Presented) A process for producing a mixture of at least two reactive gases A, B in an inert or base gas, comprising:

- determining the flammability risk of the mixture, while the mixture is being produced, or determining the order of mixing of the reactive gases into the inert or base gas, according to claim 35;
- mixing the reactive gases A and B in the order for which the composition of the mixture does not pass through the flammability region while the composition is changing, or for which the mixing time(s) or the transit time through the flammability region of the ternary diagram is (are) less than the chemical induction time of the mixture.

Claim 45. (Canceled)

46. (Previously Presented) The process according to claim 35, further comprising a prior step of determining the mixing time or times of one or more mixers intended to be used for mixing reactive gases and for determining the temperature at which the spontaneous ignition time of the mixture becomes equal or substantially equal to one of the mixing times.

47. (Previously Presented) The process according to claim 35, wherein the mixing is carried out at a temperature of between 300°C and 600°C.

48. (Previously Presented) The process according to claim 35, wherein the mixing of the two reactive gases A, B into an inert or base gas is that of a recycle process.

49. (Previously Presented) The process according to claim 35, wherein the mixture of the reactive gases is a mixture of oxygen and butane in an inert gas.

50. (Previously Presented) The process according to claim 35, wherein the mixture of the reactive gases is a mixture of oxygen and ethylene in an inert gas.

51. (Previously Presented) The process according to claim 35, wherein the reactive gases to be mixed into the inert or base gas are at least three in number and the order of mixing of the gases is determined by considering the pairs of gases that can be mixed successively, and the corresponding ternary diagrams.

52. (Previously Presented) The process according to claim 35, further comprising a step of consulting an electronic database containing data on ternary diagrams and/or consulting an electronic database containing data on induction

times of gas mixtures and/or consulting an electronic database containing data on mixing times of mixers.

53. (Previously Presented) The process according to claim 35, further comprising a graphical representation on a display screen, of the ternary diagram(s) in question and of the corresponding flammability region(s) in this diagram(s).

54. (Previously Presented) A process for producing a plant for mixing at least two reactive gases A, B into a base gas, comprising:

- determining the order of mixing the gases according to claim 35; and
- producing a plant so as to mix the gases in the order thus determined.

Claims 55-65 (Canceled)

66. (Previously Presented) A computer program comprising the instructions for executing a process according to claim 35.

67. (Previously Presented) A data medium, which can be read by a computing system, comprising the data, in coded form, for executing a process according to claim 35.

Claim 68. (Canceled)